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A

BRIEF REVIEW

OF THE

TEN YEARS' WORK

OF THE

JOHNS HOPKINS UNIVERSITY

BY

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One of the Trustees

An Address delivered at the Tenth Anniversary of
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ADDRESS.

Ladies and Gentlemen :

THE foundation and growth of a University is an event of the greatest interest.

Its functions and use have been elaborately discussed by many modern thinkers and scholars. I shall call your attention to three statements of men of differing schools of thought.

Goldwin Smith, discussing Oxford University organization, says,

“Experience seems to show that the best way in which the University can promote learning and advance science is

“(1) by allowing its teachers, and especially the holders of its great Professorial chairs, a liberal margin for private study ;

“(2) by keeping its libraries and scientific apparatus in full efficiency and opening them as liberally as possible ;

“(3) by assisting through its press in the publication of learned works which an ordinary publisher would not undertake ;

“(4) by making the best use of its power of conferring literary and scientific honors.”

Matthew Arnold says, the university “ought to provide facilities, after the general education is finished, for the young man to go on in the line where his special aptitudes lead him, be it that of languages and literature, of mathematics, of the natural sciences, of the application of these sciences, or any other line, and follow the studies of this line systematically, under first-rate teaching.”

Again, “The idea of a university is, as I have already said, that of an institution not only offering to young men facilities for graduating in that line of study to which their aptitudes direct them, but offering to them, also, facilities for following that line of study systematically under first-rate instruction. This second function is of incalculable importance, of far greater importance even than the first. It is impossible to over-value the importance

to a young man of being brought in contact with a first-rate teacher of his matter of study, and of getting from him a clear notion of what the systematic study of it means."

John Henry Newman says, "It is a great point then to enlarge the range of studies which a university professes, even for the sake of the students; and though they cannot pursue every study which is open to them, they will be gainers by living among those and under those who represent the whole circle. This I conceive to be the advantage of a seat of universal learning, considered as a place of education. An assemblage of learned men, zealous for their own sciences and rivals of each other, are brought by familiar intercourse and for the sake of intellectual peace to adjust together the claims and relations of their respective subjects of investigation. They learn to respect, to consult, to aid each other. Thus is created a pure and clear atmosphere of thought, which the student also breathes, though in his own case he only pursues a few sciences out of the multitude. He apprehends the great outlines of knowledge, the principles on which it rests, the scale of its parts, its lights and its shades, its great and its little, as he otherwise cannot apprehend them.

"Hence it is that his education is called 'Liberal.' A habit of mind is formed which lasts through life, of which the attributes are freedom, equitableness, calmness, moderation and wisdom. This then I would assign as the special fruit of the education furnished at a university. . . . This is the main purpose of a university in the treatment of its students."

And a great thinker of another generation, George Fox, advised the setting up of schools for instructing "in whatsoever things were civil and useful in the creation."

We may then conclude that a university, wisely planned and faithfully administered, should be able to gather together a company of teachers, distinguished in character and learning; to present courses of study, important and thorough; and to attract scholars mature in age and competent by reason of previous training to pursue special lines of study, in order to fit themselves in a worthy manner for their chosen vocation. It should be wide in its scope and able to supplement the College, and aid students to perfect themselves in many departments of learning. It should provide liberally all the apparatus for this study. It should be rich in laboratories, in books, in instruments. It should endow

research and stimulate investigation and discovery. It should be prepared to give results of work done within its halls speedy and wide publicity amongst scholars engaged in kindred pursuits. It should give its contribution to society by training men who are fitted to help in the solution of the problems of the age—scientific, social, political, moral and religious, both by stimulating the production of books, and by contributions to the journals and literature of the day. It should encourage all noble aspirations, conserve all good inheritances of the past, and create an atmosphere of enthusiasm for hard work. It should be able to bestow honors worthy of the name in reward for faithful devotion and for the successful fulfillment of its courses of study. Its work should be known and recognized where learning is known and recognized, and its name should carry weight in other universities and centres of research in the world of letters.

Such thoughts as these, I am sure, Judge Dobbin, were in your mind and in the minds of the other trustees to whom was entrusted by our late towns-man Johns Hopkins, the foundation and guidance of this university which was to bear his name. On the completion of the first decade of its existence, in the presence of the trustees and the President and faculty of the university, before the graduates, the present fellows, and students of the university, and in the presence of this company of our friends and fellow-citizens, it has seemed fitting to allude to these sentiments, as we proceed to consider the progress of this university.

I am glad to take this opportunity of replying in public to questions such as were asked me by a young Baltimorean, who the other day said: "Why do Baltimoreans have to go to New Haven or somewhere abroad to learn about the Johns Hopkins? "Why do you not tell us what is being done?" In order to do this before a Baltimore audience, I have supposed my friend to have asked the following questions, to which I shall briefly reply:

1. Have great teachers been attracted to the university?
2. Have important courses of study been instituted?
3. Have students come, and from whence?
4. Have patient and successful researches been carried on?
5. Has the university gathered together suitable apparatus, etc., for study?

6. Have the results of these researches been given by the university to the world?

7. Has the work done here been recognized elsewhere?

8. Has the training given proved valuable to those who have received it?

9. What has the university done for this community?

The Board of Trustees was incorporated in August, 1869, at the instance of Johns Hopkins and during his lifetime. About a year after the death of the founder in December, 1873, the Board was put in possession of the endowment provided by his beneficence, and organized for work. The President of the Board, the late Galloway Cheston, took an active part in the enterprise, and by his advice greatly aided in laying the foundation of the University, and his name will always be honorably associated with its history. The other members of the Board, all of whom had been named by Johns Hopkins, were Reverdy Johnson, Jr., the first chairman of the Executive Committee, Francis T. King, Lewis N. Hopkins, Thomas M. Smith, William Hopkins, John W. Garrett, Francis White, Charles J. M. Gwinn, George W. Dobbin, George Wm. Brown, and James Carey Thomas.

What great teachers have been attracted?

It was soon apparent that the wise and untrammelled directions of Johns Hopkins to his trustees to found a university would attract the attention of those interested in the cause of education, especially in the United States.

The opportunity of developing an institution suited to the needs of the country was sufficient to draw to Baltimore from across the continent the then President of the University of California, Daniel C. Gilman, who was named to the trustees as the man best fitted by previous training and devotion to the study of educational methods, to advise and direct the establishment of the new foundation, by his former colleagues of Yale College—by President Eliot, of Harvard University, at once the most renowned and the most venerable institution of learning in the country—by President White, of Cornell University, then in the early days of its growing importance and usefulness—by President Angell, of the University of Michigan, the crowning institution of learning of the well-organized system of public instruction in that

great and strong western State—and by numerous other leading educators. At the request of the trustees Mr. Gilman came to Baltimore, and after consultation with them accepted the Presidency of the Johns Hopkins University. Under his thoughtful care and constant and laborious effort the plan originally contemplated has been gradually and harmoniously developed.

Besides President Gilman the University also drew from across the ocean, from Woolwich, England, Professor Sylvester, one of the two greatest English mathematicians, and indeed one of the greatest of the world; and from Virginia, in our own land, Professor Gildersleeve, second to none in his attainments in and devotion to Greek and other classical study—besides younger men whose subsequent career has justified the bright promise of their early years. I shall not mention further by name the present distinguished staff of Professors and teachers, whose work I have alluded to and who form the permanent renown and attraction of the University.

I will give a list in chronological order of those gentlemen, not now connected with the University, who, for a longer or shorter period, have lectured here during the past ten years:

In Language and Literature, Professors F. J. Child, James Russell Lowell, W. D. Whitney, C. R. Lanman, Thomas C. Murray, H. C. G. Brandt, Sidney Lanier, too early lost, Professors W. W. Goodwin, J. A. Harrison, J. Rendel Harris, Hiram Corson, A. S. Cook, Messrs. George W. Cable, Edmund Gosse, Justin Winsor, A. Melville Bell, Drs. Isaac H. Hall and W. Hayes Ward; in History and Political Science, Professors T. M. Cooley, F. A. Walker, W. F. Allen, the lamented J. L. Diman, H. Von Holst, Austin Scott, James Bryce, E. A. Freeman, who gave six lectures and imparted a decided impulse to historical study here, R. M. Venable, Messrs. J. J. Knox and Eugene Schuyler; in Archæology and Art, Messrs. W. W. Story, F. Seymour Haden, J. Thacher Clarke, W. J. Stillman, Dr. Charles Waldstein, and Mr. Frederick Wedmore; in Philosophy and Logic, Professors William James, G. S. Morris, Mr. C. S. Pierce, and Dr. Josiah Royce; in Physical and Mathematical Science, Professors J. E. Hilgard, J. Willard Gibbs, John Trowbridge, A. Graham Bell, S. P. Langley, Arthur Cayley, C. S. Hastings, and Sir William Thomson; in Chemistry and Biology, Professors J. W. Mallet, W. G. Farlow, J. McCrady, W. T. Sedgwick, H. Sewall, and W. Trelease.

At our Commencements, Anniversaries, and other gatherings, we have heard from Presidents Eliot and White, from Dean Stanley, Dean Howson, Professor Huxley, Archdeacon Farrar, Chief Justice Waite, Hon. W. M. Evarts, Dr. W. A. P. Martin, Dr. W. B. Carpenter, Hon. S. T. Wallis, J. B. Braithwaite and others.

Many of these have been listened to by those not members of the university who were specially interested in their subjects, and it may be fairly said that many eminent and great teachers have been both for long and short periods attracted to the university.

What university courses are here offered, and what graduate students have been attracted?

The courses of university studies that have been pursued have been so often and so fully referred to in the Reports and Circulars of the University, that I can only enumerate those: in higher Mathematics, in Physics, in Chemistry, in Mineralogy and Petrography, in Biology; in Greek, in Latin, in Sanskrit, in Hebrew, in Aramæan, in Arabic, in Assyrian, and in Sumero Akkadian; in English, in German, in the Romance group of languages, including French, old and modern, Wallachian, Italian, Spanish, Catalan, old Provençal, modern Provençal, and Portuguese; in History, ancient and modern, in Political Economy, Physical and Historical Geography; in Psychology, Pedagogics and Philosophy, in Mental Hygiene and Ethics. In these studies advanced instruction has been given by all available means such as lectures, laboratory practice, seminary work, books, models and plates, in order to fit those who are preparing for teaching or special research.

That these courses have succeeded in attracting students of mature age is evident from the fact that out of the total number of students (923) enrolled during the decade, 590 have pursued graduate courses, and these 590 came from more than 100 different universities and colleges as widely separated as Russia and Japan.

What apparatus and appliances have been gathered together?

To aid in the instruction given, the trustees have from the first had in view securing the most convenient and free access to the most modern means of promoting research. They were greatly

aided by the existence in Baltimore of a library of unusual value to students—the gift of the late George Peabody, and brought together with much care and diligence by the trustees, the provost, and the librarian of the Peabody Institute—and which has been liberally opened to members of the university. As a supplement to the Peabody collections the university has placed within its own walls twenty-nine thousand volumes—a portion of which are standard reference books needed by all the teachers and students, the remainder are special and often costly books which have been called for by the specialists here engaged in work.

The plans of the university being at first, from the nature of the case, tentative, the work was begun in two dwelling houses purchased in 1875, on Howard street near Monument street, and in a hall erected at the time and named after the founder, which contained an assembly room and accommodations for the library and for the biological laboratory, and in a chemical laboratory built at the same time, and this was for some time the modest seat of the university. The location was found more convenient than had been foreseen, both for students who lived in the city and for those that came from elsewhere, who readily found accommodation in lodgings suited to their taste and means. Easy access was had to the Peabody and other collections of books, as those of the Historical Society, and later of the Pratt Library, and there have gradually grown around the present site complete and well equipped laboratories. The chemical laboratory has been greatly enlarged and perfected. The biological laboratory adjoining has been erected after plans suggested by years of work and by comparison with foreign institutions of a similar kind, and there is now building near by the physical laboratory, of which Professor Rowland has been speaking to you to-day. Laboratory work in pathology has been begun in one of the buildings of the Johns Hopkins Hospital, and it is intended to erect the Medical School on a lot now owned by the university, adjacent to the hospital.

Into these various buildings have been gathered, at the suggestion and under the careful personal supervision of various experts, about \$70,000 worth of apparatus of the most approved modern make, thus placing within the reach of investigators the means of pursuing advanced research as well as enabling students

to become familiar by personal use with the newest methods of study and experiment.

What research is carried on—and what has been published?

The researches which have been made have been many and varied. I cannot refer to the more technical, such as those in mathematics and inorganic chemistry, &c., but briefly to the more easily stated.

Our knowledge of the nature of the sun, as perceived through the solar spectrum, has received accessions from the beautiful image, thrown from the gratings first made here by the agency of a wonderful dividing engine, the invention of the Professor of Physics. From this image a map of the spectrum has been published, very much more minute than any before made.

Researches in electricity and magnetism have been made under the auspices of the United States Government, with the coöperation of other nations; the mechanical equivalent of heat has been re-determined; investigations have been conducted in physiology, especially of the heart's action; lower animal life has been studied, especially that of the oyster in connection with the State of Maryland; both here and in Boston the cause of water pollution in great reservoirs has been discovered; the curious geological formation of our own neighborhood has been brought to notice and has attracted wide attention. The philologists and grammarians have been engaged in the investigation of Greek and Latin syntax; in editing ancient writings, such as Pindar, the newly discovered Greek MSS. of the Teaching of the Twelve Apostles, and part of an old Syriac MS. of the New Testament. Baltimore is now one of the centres for the interpretation of Sanskrit texts and of Assyrian inscriptions. A great contribution has been made to the study of American Institutions, and new methods of historical research and of publication have been initiated.

It is with satisfaction that I state that these researches have been widely recognized at home and abroad, not as *promises* for the future, but as successful experiments recorded, and conclusions reached which have passed into the history of science. By means of them the fame of the university has been carried into every seat of learning in the world, from Oxford and Cambridge in England, to Tokio, Japan; from the northern and more modern universities of Sweden and Russia to the ancient seats of

learning in Italy and Southern Europe. The exchanges on the shelves of our library, received with almost every foreign mail in return for the six scientific journals published by the university,¹ attest both its importance and its estimation outside its own walls. Besides this, personal and unsolicited testimonials from eminent men are on file in the office which have been received from many quarters.

These researches, delicate, prolonged, and important, and others not now mentioned, have been made by Professors, Fellows, and advanced students. Indeed the whole plan of fellowships has in reality been a most practical and efficient endowment of research and has richly repaid the university and the community in the importance and value of the results obtained.

Twenty young men who have not quite completed their work, as students following masters, but who have gone far enough to indicate that they are possessed of unusual ability, are annually chosen by the Academic Council and are encouraged by a generous stipend to devote all their time to study which is not of a distinctively professional character. They are chosen because of the hope they give of future achievements, or are selected on the evidence they submit of their previous intellectual attainments. The system here adopted has elsewhere been followed.

What has been the value of this training?

Has the training here been of value to the men that have submitted to the severe ordeal of discipline and who have often surrendered honorable and lucrative positions to avail themselves of the advantages offered for research and study? Or in other words are the diplomas to be given to-day as testimonials of the University to the attainments of those to whom they are so worthily awarded, of real value to their possessors?

Of the 69 persons who in these ten years have been admitted to the degree of Doctor of Philosophy, denoting proficiency in var-

¹ 1. The American Journal of Mathematics, commenced in 1878, now in its eighth volume; 2. The American Chemical Journal, commenced in 1879, now in its eighth volume; 3. The American Journal of Philology, commenced in 1880, now in its seventh volume; 4. Studies from the Biological Laboratory, commenced in 1879, now in its third volume; 5. Studies in Historical and Political Science, begun in 1882, of which the fourth series is in progress; 6. The Johns Hopkins University Circulars, begun in 1879, of which forty-nine numbers have been issued.

ious lines of special graduate study, either in letters or in science, 56 have obtained honorable positions as professors and teachers in 32 universities and colleges; and of the 90 to whom the degree of Bachelor of Arts has been given, 20 have engaged in teaching in 16 colleges and high schools.

I will conclude this part of my subject by quoting the reply made by a graduate student from North Carolina, when asked what he had found here of most use, he replied: "The freedom of access to able teachers and the stimulant of studying in company with men of maturer minds than one meets elsewhere."

But what has the university done for this community?

Besides the incidental advantages which must accrue to any community from the presence of a great seat of learning, the trustees have had in mind from the first the special needs of this city and state. At the conclusion of the late war fewer boys were at college than at former periods. Many young men here and further south had foregone college training, and circumstances forbade the sending of others who were growing up. It was manifest that the need of our own people was first a college in order to train for life, or for further university instruction. So side by side with the university has developed the college department of the Johns Hopkins University. This was begun when the discussion of a fixed, a free or wholly or partly elective college course had not been so warmly debated as at the present time, but it was evident that the wide range which the development of various branches of knowledge has taken since the old arrangement of college studies was effected, and the limited time which can ordinarily be devoted by students to preparation for their life work, made a readjustment of the college course desirable. This was accomplished here by arranging, after a fixed matriculation, the studies in groups rather than years, and demanding in each group a certain required amount of training in other than the main study of the course. Thus classical students are required to study some science, scientific students some classics, and all to receive a fixed amount of general English training in literature, ethics, philosophy, and modern languages.

The seven groups, for which, in accordance with these principles, arrangements are now made, are these:—

1. Classical,—corresponding closely with what has been hitherto known in this country as the usual college course;

2. Mathematical-Physical,—which meets the wants of those who are expecting to enter upon the modern vocations in which rigid mathematical discipline is indispensable ;

3. Chemical-Biological,—which is adapted to those, among others, who expect to enter upon the subsequent study of medicine ;

4. Physical-Chemical,—which is most likely to be followed by students preparing for those scientific pursuits which are neither chiefly mathematical nor chiefly biological ;

5. Latin-Mathematical,—which affords a good fundamental training, without prolonged attention to the study of Greek ;

6. Historical-Political,—which furnishes a basis for the subsequent study of law ;

7. Modern Language,—where French, German, English, and in exceptional cases, other modern languages, take the place of Latin and Greek in the traditional classical course.

It cannot be said that this arrangement is perfect, but it has worked well and great effort is made to have it at once liberal and adapted to the exigencies of active life. I should like all the time at my disposal to expand more fully this slight sketch of the college course which lies near my own heart, but must content myself with stating that it has from the first attracted our own boys to whom great inducement has been held out, and who have proved some of our most enthusiastic and successful students, have won for themselves many of our own fellowships, and have gone out to positions of importance and emolument. Their number is rapidly increasing and the university is constantly endeavoring to make closer the connection between the high schools, whether private or public, and the collegiate department of the Johns Hopkins University.

Various free scholarships are annually offered to students coming from Maryland, Virginia, and North Carolina, and have been held by 150 students from these States. The existence in our midst of such advantages is stimulating our young men to avail themselves of them, and is increasing the number and efficiency of preliminary schools. We have now in the collegiate department one hundred and thirty students.

I have thus, in the briefest and most prosaic manner endeavored to summarize the work of ten years into the space of twice as

many minutes. It has been impossible ; although I have not even glanced at the various literary and scientific societies formed for themselves by the members of the university, nor alluded to the common college life, nor spoken of the work of the Christian Association of the University which has served an excellent purpose, but yet I think that I have shown that something has been done to bring together great teachers, to start liberal courses of study, to attract students, to collect libraries and apparatus, to stimulate research, to publish results, and have stated in what manner this work has been recognized, and how the needs of this community have been considered.

But I am sure that in reaching these conclusions you must feel how little has been done in comparison with what is practicable with longer time and greater resources. The perpetuation and enlargement of the university on a broad and liberal foundation should be the pride of every citizen. It is a great trust to be handed down to those who shall succeed us. Let us be careful to see that no detriment happen to it.

Amidst the jarring of contending factions and classes there needs must be thoughtful men, trained to habits of patient investigation and quiet study—amidst the rush of business and competition, men who in secluded laboratories pass hours and days in subtle experiments—amidst the selfishness of politicians and placemen, historians and philosophers and teachers who can recall the lessons of past ages and vindicate the great moral principles which underlie all true progress.

For these and other great purposes universities should exist and be richly endowed. They should be few, but strong.

A president of a growing western college, last week in Baltimore, emphasized most strongly the importance of adding efficiency to existing universities in order to make them great centres for training and research. The possessors of great wealth, most frequently in this country accumulated in the course of a single life, have often felt their responsibility in its ultimate destination. They have in many instances, amongst which the course of Johns Hopkins is conspicuous, returned their accumulated gains to the community in noble gifts, founding great institutions of learning and great charities, for the training of the future citizen and for the alleviation of human suffering. These should be fostered and

enlarged, as has been done at Harvard and at Cornell, in order that the greatest good may be accomplished.

The training of *men* is after all the most important end of all educational effort. It is to you, young men, the sons of this new foundation, that your teachers and friends look as the best evidence of the success of their endeavor. Your learning, your usefulness, your accomplishments, your high aims and noble character, your achievements, whether in the pulpit or the forum, the college or the laboratory, at home and abroad will afford a continual and living reminder of this, the place of your training.

To a State founded on the beneficent precepts of Christianity, the walls of its defense must be not the physical strength of its citizens but their moral character. In vain will science harness the powers of the universe unless they are yoked to the chariot of peace and good will. In vain will learning and training give efficiency to individual influence and native genius, unless the purposes of the man are noble and far-reaching. The truth which sets free, is the truth which warms the heart and expands the sympathies, as well as enlightens the intellect, which is of Him who is the truth Himself. Let us have confidence in the supremacy of truth. Such has hitherto been the guiding lamp of the Johns Hopkins University. May it ever be the beacon of the future.



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